

30 March 2020

Mr. Jeremy Jennings  
U.S. Environmental Protection Agency  
1200 Sixth Avenue (ECL-111)  
Seattle, Washington 98101

Subject: 2019 Annual Progress Report  
South Tacoma Field, Tacoma, Washington  
KJ 1996126.00 and 966124.34

Dear Mr. Jennings:

On behalf of BNSF Railway Company (BNSF) and Amsted Industries (Amsted), enclosed is the *2019 Annual Progress Report* for the South Tacoma Field site. Quarterly groundwater monitoring was conducted at selected wells at the site, and annual monitoring was discontinued at other site wells in accordance with Revised Groundwater Monitoring Plans for the site. BNSF and Amsted plan to continue inspection activities on a rolling 18-month schedule, and plan to continue working with U. S. Environmental Protection Agency (EPA) to delete the groundwater portion of the site from the National Priorities List.

Please call us at (253) 835-6400 if you have questions regarding the information contained herein.

Very truly yours,  
Kennedy/Jenks Consultants, Inc.



Julia Schwarz, L.G.  
Project Manager



Todd Miller  
Vice President

Enclosures

cc: Michael Krautner, Amsted Industries  
Dan Rogers, Amsted Industries  
Scott MacDonald, BNSF  
Brooke Kuhl, BNSF  
Doug Rhine, R.W. Rhine

# Progress Report

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**SITE NAME:** South Tacoma Field, Tacoma, Washington

**PREPARED BY:** Kennedy Jenks

**REPRESENTING:** BNSF Railway Company & Amsted Industries

**DATE:** 1 April 2020 for Reporting Year 2019

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## REPORTING PERIOD:

**a. Progress made this reporting period, including problems encountered and recommendations:**

The 2018 annual groundwater monitoring event was conducted in January 2019 at the South Tacoma Field (STF) site; other 2019 monitoring events included quarterly monitoring of selected wells (described in more detail below).

A groundwater attainment analysis was submitted to U.S. Environmental Protection Agency (EPA) on 4 January 2019, and in a letter dated 19 September 2019, EPA agreed that groundwater in wells STM-1A1, CBS-7A, CBS-9A, CBS-10A, VMW-1 (Amsted), VMW-2, VMW-3, NMW-17A, MW-1A (Amsted), CBS-4A (Amsted), NMW-8A1, NMW-9A, and NMW-11A had reached attainment of cleanup levels (CULs) protective of human health and the environment, and monitoring of these wells could cease. Updated groundwater monitoring plans were submitted to EPA by the BNSF Railway Company (BNSF) and Amsted Industries (Amsted) in December 2019 and were approved by EPA the same month. The updated groundwater monitoring plans discontinue monitoring at most site wells, and describe continued monitoring of the following locations:

- NMW-1A (Pioneer Builders Supply)
- NMW-10A (Pioneer Builders Supply)
- STM-3A1 (BNSF Consolidation Area)
- STM-1A1 (BNSF Consolidation Area).

Field activities conducted in 2018 indicated the presence of obstructions in wells STM-3A and STM-4A. In January 2019 (resubmitted with edits on 20 May 2019), a work plan to decommission these two wells and replace them with one well was submitted to EPA. The work was approved by EPA in a letter dated 31 May 2019. On 21 June 2019, replacement monitoring well STM-3A1 was installed in between, and equidistant from, STM-3A and STM-4A. The well was developed on 10 July 2019 and was first sampled on 19 July 2019. Wells STM-3A and STM-4A were decommissioned on 12 September 2019.

Four quarterly monitoring events were conducted in 2019 at the STF site. The January 2019 monitoring event doubled as the 2018 annual groundwater sampling event. The

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second and third quarter 2019 monitoring events were conducted per previous agreements with EPA regarding sampling at STM-3A and STM-4A, and sampled wells and analytes were based on preliminary submittal of groundwater attainment documentation to EPA. During these events, wells were sampled for the analyses listed below, in accordance with the groundwater attainment analysis submitted to EPA on 4 January 2019.

- Well NMW-1A was sampled for benzene, 1,4-dichlorobenzene, 1,2,4-trichlorobenzene, gasoline-, diesel- and oil-range organics (GRO, DRO, and ORO).
- Well NMW-10A was sampled for GRO (four quarters), 1,1,2-trichloroethane (first and fourth quarters), and volatile organic compounds (VOCs) and DRO and ORO (first quarter).
- Wells STM-3A and STM-4A were sampled for total and dissolved lead (first, second, and third quarters).
- Well STM-3A1 (replacement well for STM-3A and STM-4A) was sampled for total and dissolved lead (third and fourth quarters).
- Well STM-1A1 was sampled for total and dissolved lead (four quarters).

Groundwater elevations are summarized in Table 1 and analytical laboratory results are summarized in Tables 2, 3, and 4. Figure 1 shows the site and STF and Amsted monitoring well locations, and Figure 2 displays the Pioneer monitoring well locations.

EPA's groundwater attainment approval was not received until after the third quarter sampling event (sampling event conducted July 2019; EPA letter received September 2019). Prior to receipt of EPA approval of groundwater attainment, groundwater sampling was conducted at wells where concentrations of site contaminants of concern (COCs) were above previously established site CULs, and samples were only analyzed for these COCs. EPA's 19 September 2019 letter identified additional contaminants of potential concern (COPCs) above Model Toxics Control Act (MTCA) Method B CULs.

COPCs identified by EPA for further sampling included benzene and 1,1,2-trichloroethane in well NMW-10A. Samples were analyzed for these COPCs during previous annual sampling events (e.g., January 2019), but were not analyzed in the second and third quarter events as BNSF had not yet been notified by EPA of the requirement to attain Method B CULs. These analytes were added during the fourth quarter 2019 sampling event. During first and fourth quarter 2019, these COPCs were not detected above laboratory reporting limits. Results have been below the laboratory reporting limits since December 2016. As BNSF complied with all required analyses as soon as notified by EPA, these missing events should not negatively impact the number of sampling events required by EPA at well NMW-10A. BNSF suggests that if results for benzene and 1,1,2-trichloroethane in NMW-10A remain below MTCA Method B CULs for two more sampling events, groundwater should be found to be in attainment at this well.

During this reporting period, GRO was detected at concentrations above the laboratory reporting limit in samples collected from wells NMW-1A and NMW-10A, and the concentration of GRO in groundwater from well NMW-1A was above the site CUL in December 2019. DRO and ORO were reported above the laboratory reporting limit but below the site CUL in samples collected from wells at the site.

Selected VOCs were reported in groundwater samples collected from well NMW-10A; however, concentrations were below the applicable site CULs and MTCA Method B CULs.

Selected VOCs were reported above their applicable site CULs and/or MTCA Method B CULs in groundwater samples collected from well NMW-1A. Benzene was detected at a concentration above the MTCA Method B CUL during the second and third quarter 2019; 1,4-dichlorobenzene was reported at a concentration above the site CUL during the second, third, and fourth quarter 2019; and 1,2,4-trichlorobenzene was above the MTCA Method B CUL during the second, third, and fourth quarter 2019.

A fence break was noted at the site in August 2019, near the main gate at 4800 Burlington Way. The fence was repaired in October 2019. Homeless encampments at the site continue to be an ongoing problem.

In December 2019, EPA approved of BNSF and Amsted decreasing cap inspections to a rolling 18-month cap inspection cycle. A cap inspection was not conducted in 2019; the next cap inspection is scheduled for June 2020.

**b. Anticipated problem areas and recommended solutions, including technical and scheduling information:**

Groundwater samples from Pioneer Builders Supply well NMW-1A continue to contain concentrations of COCs above site CULs and above MTCA Method B CULs. However, surrounding site wells do not show evidence of migration of COCs beyond this well, no occupied buildings are near this well, and groundwater use at Pioneer is restricted under an environmental covenant. Concentrations at well NMW-1A are relatively stable. Further information will be provided to EPA in 2020 to assist in closure of this portion of the groundwater site under the existing environmental covenant.

Well security and fencing conditions will continue to be monitored during quarterly sampling activities and cap inspections. Minor ponding in maintenance grids will continue to be monitored during cap inspections to assess erosion. In general, soil caps are intact and functioning as designed. The cap inspections will occur on a rolling 18-month inspection cycle. The first inspection for the new 18-month cycle is scheduled for June 2020.

**c. Problems resolved including results obtained relating to previously identified problem areas.**

None were identified.

**d. Deliverables submitted, including dates of completion, deliverable anticipated to be submitted with next report, and reasons due dates for any future deliverables may need to be revised. Delays should be fully explained:**

Deliverables submitted to EPA in 2019 are listed below.

- The *Groundwater Attainment Analysis, Proposed Reductions in Sampling Frequency, and STM-3A and STM-4A Proposed Work Plan* was submitted to EPA on 4 January 2019.
- The 2018 Annual Progress Report was submitted to EPA on 28 March 2019.

- An updated *Site Development and Institutional Controls Plan* (SDICP), was submitted to EPA on 1 May 2019. EPA requested an updated SDICP by 1 April 2019 in a letter dated 20 December 2018; however, due to the government shutdown that occurred in December 2018 and January 2019, EPA extended the deadline for the updated SDICP to 1 May 2019.
- The *STM-3A and STM-4A Proposed Work Plan (Revised) BNSF South Tacoma Field* was submitted to EPA on 20 May 2019.
- A request for 18 month rolling inspections was submitted to EPA on 26 November 2019.
- BNSF South Tacoma Field Well Decommissioning Work Plan, South Tacoma Field, Commencement Bay-South Tacoma Channel Superfund Site submitted on 6 December 2019 and approved by EPA on 10 December 2019.
- The *Revised Groundwater Monitoring Plan, South Tacoma Field OU*, was submitted to EPA on 6 December 2019 and approved by EPA on 10 December 2019.
- The *Revised Groundwater Monitoring Plan Amsted Portion of South Tacoma Field* and *Former Amsted Property Well Decommissioning Work Plan* were submitted to EPA on 10 December 2019 and approved by EPA on 23 December 2019.

Planned deliverables for 2020 include:

- Revised (abbreviated) BNSF SDICP to be submitted in first or second quarter 2020.
- Former Amsted Property-Specific plan addressing inspection and maintenance items specific to former Amsted properties, as noted in EPA's 23 December 2019 letter to Amsted. This is expected to be submitted to EPA in second or third quarter 2020.
- Groundwater attainment documentation for wells STM-3A/STM-4A/STM-3A1 following additional groundwater sampling events. This is planned for third quarter 2020, assuming completion of four consecutive clean quarters of sampling at well STM-3A1. This will be combined with four consecutive clean quarters of sampling at STM-3A and STM-4A, for a total combined record of eight clean quarters downgradient of the southern consolidation area. Figure 3 shows concentrations at wells STM-3A, STM-4A, and STM-3A1.

**e. Upcoming event/activities planned, including field surveys, meetings, etc., and all major tasks to be performed within the next reporting period:**

- Conduct quarterly groundwater monitoring of wells STM-1A1, STM-3A1, NMW-1A, and NMW-10A until EPA gives notice of groundwater attainment or approves of an alternate groundwater monitoring plan.
- Well decommissioning of wells CBS-4A, CBS-7A, CBS-10A, MW-1A, NMW-8A1, NMW-9A, NMW-11A, NMW-17A VMW-1, VMW-2, and VMW-3. Decommissioning of these wells was approved by EPA in December 2019 in response to separate requests from BNSF and Amsted.

**f. Key staffing changes, including consultant, contractor, or subcontractor personnel:**

None.

**g. Reports, including identification of daily reports, inspection reports, laboratory/monitoring data, etc., that are available for review if requested by EPA:**

Tables 1 through 4 summarize groundwater elevations and analytical results. The laboratory analytical reports are available electronically upon request.

## Tables

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Table 1: Depth to Groundwater and Groundwater Elevations  
South Tacoma Field Site

| Well Designation                                | Date of Measurement | Top of Casing Elevation (feet above MSL) | Measured Depth to Water (feet from top of casing) | Groundwater Elevation (feet above MSL) |
|---|---------------------|--|---|--|
| <b>Pioneer Builders Supply Monitoring Wells</b> |                     |  |   |  |
| NMW-1A  | May 1999            | 252.66                                   | 30.66   | 222.00                                 |
|   | August 1999         | 252.66                                   | 31.08   | 221.58                                 |
|   | 1/21/2000           | 252.66                                   | 29.22   | 223.44                                 |
|   | October 2001        | 252.66                                   | 32.01   | 220.65                                 |
|   | October 2002        | 252.66                                   | 31.96   | 220.70                                 |
|   | 12/29/2004          | 252.66                                   | 34.17   | 218.49                                 |
|   | 1/10/2006           | 252.66                                   | 32.84   | 219.82                                 |
|   | 1/11/2007           | 252.66                                   | 30.58   | 222.08                                 |
|   | 12/26/2007          | 252.66                                   | 29.86   | 222.80                                 |
|   | 12/21/2010          | 252.66                                   | 25.72   | 226.94                                 |
|   | 1/25/2012           | 252.66                                   | 25.09   | 227.57                                 |
|   | 12/27/2012          | 252.66                                   | 23.51   | 229.15                                 |
|   | 1/30/2014           | 252.66                                   | 27.12   | 225.54                                 |
|   | 12/19/2014          | 252.66                                   | 25.66   | 227.00                                 |
|   | 1/6/2016            | 252.66                                   | 28.96   | 223.70                                 |
|   | 12/06/2016          | 252.66                                   | 25.08   | 227.58                                 |
|   | 12/04/2017          | 252.66                                   | 23.34   | 229.32                                 |
|   | 1/31/2019           | 252.66                                   | 25.77   | 226.89                                 |
|   | 5/22/2019           | 252.66                                   | 25.84   | 226.82                                 |
|   | 7/19/2019           | 252.66                                   | 26.89   | 225.77                                 |
|   | 12/11/2019          | 252.66                                   | 27.21   | 225.45                                 |
| NMW-8A  | May 1999            | 253.89                                   | 29.65   | 224.24                                 |
|   | August 1999         | 253.89                                   | 32.19   | 221.70                                 |
|   | 1/21/2000           | 253.89                                   | 30.44   | 223.45                                 |
|   | October 2001        | 253.89                                   | 31.17   | 222.72                                 |
|   | October 2002        | 253.89                                   | 33.13   | 220.76                                 |
|   | 12/29/2004          | 253.89                                   | 35.91   | 217.98                                 |
|   | 1/10/2006           | 253.89                                   | 33.84   | 220.05                                 |
|   | 1/11/2007           | 253.89                                   | 31.89   | 222.00                                 |
|   | 12/26/2007          | 253.89                                   | 31.08   | 222.81                                 |
|   | 12/21/2010          | 253.89                                   | 27.07   | 226.82                                 |
|   | 1/25/2012           | 253.89                                   | 26.46   | 227.43                                 |
|   | 12/27/2012          | 253.89                                   | 24.96   | 228.93                                 |
|   | 1/30/2014           | 253.89                                   | 28.49   | 225.40                                 |
|   | 12/19/2014          | 253.89                                   | 28.98   | 224.91                                 |
|   | 1/6/2016            | 253.89                                   | 30.28   | 223.61                                 |
| NMW-8A1   | 1/6/2016            | 252.34                                   | 29.64   | 222.70                                 |
|   | 12/06/2016          | 252.34                                   | 24.83   | 227.51                                 |
|   | 12/04/2017          | 252.34                                   | 23.34   | 229.00                                 |
|   | 1/31/2019           | 252.34                                   | 25.49   | 226.85                                 |
| NMW-9A  | May 1999            | 252.64                                   | 29.66   | 222.98                                 |
|   | August 1999         | 252.64                                   | 32.23   | 220.41                                 |
|   | 1/21/2000           | 252.64                                   | 30.28   | 222.36                                 |
|   | October 2001        | 252.64                                   | 33.23   | 219.41                                 |
|   | October 2002        | 252.64                                   | 33.13   | 219.51                                 |
|   | 12/29/2004          | 252.64                                   | 36.08   | 216.56                                 |
|   | 1/10/2006           | 252.64                                   | 33.42   | 219.22                                 |
|   | 1/11/2007           | 252.64                                   | 30.21   | 222.43                                 |
|   | 12/26/2007          | 252.64                                   | 29.77   | 222.87                                 |
|   | 12/21/2010          | 252.64                                   | 25.61   | 227.03                                 |
|   | 1/25/2012           | 252.64                                   | 24.96   | 227.68                                 |
|   | 12/27/2012          | 252.64                                   | 23.56   | 229.08                                 |
|   | 1/30/2014           | 252.64                                   | 27.21   | 225.43                                 |
|   | 12/19/2014          | 252.64                                   | 25.74   | 226.90                                 |
|   | 1/6/2016            | 252.64                                   | 28.95   | 223.69                                 |
|   | 12/06/2016          | 252.64                                   | 25.09   | 227.55                                 |
|   | 12/04/2017          | 252.64                                   | 23.59   | 229.05                                 |
|   | 1/31/2019           | 252.64                                   | 25.81   | 226.83                                 |

Table 1: Depth to Groundwater and Groundwater Elevations  
South Tacoma Field Site

| Well Designation | Date of Measurement         | Top of Casing Elevation (feet above MSL) | Measured Depth to Water (feet from top of casing) | Groundwater Elevation (feet above MSL) |
|------------------|-----------------------------|--|---|--|
| NMW-10A          | May 1999                    | 253.09                                   | 29.54   | 223.55                                 |
|                  | August 1999                 | 253.09                                   | 32.15   | 220.94                                 |
|                  | 1/21/2000                   | 253.09                                   | 30.23   | 222.86                                 |
|                  | October 2001                | 253.09                                   | 33.02   | 220.07                                 |
|                  | October 2002                | 253.09                                   | 33.07   | 220.02                                 |
|                  | 12/29/2004                  | 253.09                                   | 36.03   | 217.06                                 |
|                  | 1/10/2006                   | 253.09                                   | 33.47   | 219.62                                 |
|                  | 1/11/2007                   | 253.09                                   | 30.86   | 222.23                                 |
|                  | 12/26/2007                  | 253.09                                   | 30.29   | 222.80                                 |
|                  | 12/21/2010                  | 253.09                                   | 26.15   | 226.94                                 |
|                  | 1/25/2012                   | 253.09                                   | 25.49   | 227.60                                 |
|                  | 12/27/2012                  | 253.09                                   | 23.06   | 230.03                                 |
|                  | 1/30/2014                   | 253.09                                   | 27.65   | 225.44                                 |
|                  | 12/19/2014                  | 253.09                                   | 26.15   | 226.94                                 |
|                  | 1/6/2016                    | 253.09                                   | 29.45   | 223.64                                 |
|                  | 12/06/2016                  | 253.09                                   | 25.55   | 227.54                                 |
|                  | 12/04/2017                  | 253.09                                   | 24.10   | 228.99                                 |
|                  | 1/31/2019                   | 253.09                                   | 26.25   | 226.84                                 |
|                  | 5/22/2019                   | 253.09                                   | 26.33   | 226.76                                 |
|                  | 7/19/2019                   | 253.09                                   | 27.39   | 225.70                                 |
|                  | 12/11/2019                  | 253.09                                   | 27.68   | 225.41                                 |
| NMW-11           | May 1999                    | NA                                       | NM  | NC                                     |
|                  | August 1999                 | NA                                       | 32.22   | NC                                     |
|                  | 1/21/2000                   | NA                                       | 30.43   | NC                                     |
|                  | October 2001                | NA                                       | 33.18   | NC                                     |
|                  | October 2002                | NA                                       | 33.07   | NC                                     |
|                  | 12/29/2004                  | NA                                       | 36.04   | NC                                     |
|                  | 1/10/2006                   | NA                                       | 34.09   | NC                                     |
| NMW-11A          | 1/11/2007                   | 253.94                                   | 32.03   | 221.91                                 |
|                  | 12/1/2007                   | 253.94                                   | 31.21   | 222.73                                 |
|                  | 12/21/2010                  | 253.94                                   | 27.08   | 226.86                                 |
|                  | 1/25/2012                   | 253.94                                   | 26.40   | 227.54                                 |
|                  | 12/27/2012                  | 253.94                                   | 24.94   | 229.00                                 |
|                  | 1/30/2014                   | 253.94                                   | 28.38   | 225.56                                 |
|                  | 12/19/2014                  | 253.94                                   | 28.90   | 225.04                                 |
|                  | 1/6/2016                    | 253.94                                   | 30.32   | 223.62                                 |
|                  | 12/06/2016                  | 253.94                                   | 26.33   | 227.61                                 |
|                  | 12/06/2017                  | 253.94                                   | 24.96   | 228.98                                 |
|                  | 1/31/2019                   | 253.94                                   | 27.00   | 226.94                                 |
|                  | <b>STF Monitoring Wells</b> |  |   |  |
| STM-3A           | 4/1/1999                    | 238.41                                   | 14.80   | 223.61                                 |
|                  | October 2000                | 238.41                                   | 17.57   | 220.84                                 |
|                  | October 2001                | 238.41                                   | 14.61   | 223.80                                 |
|                  | October 2002                | 238.41                                   | 18.25   | 220.16                                 |
|                  | 12/29/2004                  | 238.41                                   | 15.24   | 223.17                                 |
|                  | 1/11/2007                   | 238.41                                   | 16.04   | 222.37                                 |
|                  | 12/21/2010                  | 238.41                                   | 11.67   | 226.74                                 |
|                  | 1/25/2012                   | 238.41                                   | 10.88   | 227.53                                 |
|                  | 12/27/2012                  | 238.41                                   | 9.98  | 228.43                                 |
|                  | 1/30/2014                   | 238.41                                   | 13.83   | 224.58                                 |
|                  | 12/19/2014                  | 238.41                                   | 12.29   | 226.12                                 |
|                  | 1/6/2016                    | 238.41                                   | 15.50   | 222.91                                 |
|                  | 12/06/2016                  | 238.41                                   | 12.52   | 225.89                                 |
|                  | 12/05/2017                  | 238.41                                   | 10.10   | 228.31                                 |
|                  | 6/27/2018                   | 238.41                                   | 11.57   | 226.84                                 |
|                  | 9/19/2018                   | 238.41                                   | 14.78   | 223.63                                 |
|                  | 12/27/2018                  | 238.41                                   | 12.56   | 225.85                                 |
|                  | 1/30/2019                   | 238.41                                   | 12.40   | 226.01                                 |
|                  | 5/22/2019                   | 238.41                                   | 12.45   | 225.96                                 |
|                  | 7/19/2019                   | 238.41                                   | 13.51   | 224.90                                 |

Table 1: Depth to Groundwater and Groundwater Elevations  
South Tacoma Field Site

| Well Designation | Date of Measurement | Top of Casing Elevation (feet above MSL) | Measured Depth to Water (feet from top of casing) | Groundwater Elevation (feet above MSL) |
|------------------|---------------------|--|---|--|
| STM-4A           | 4/1/1999            | 239.84                                   | 16.25   | 223.59                                 |
|                  | October 2000        | 239.84                                   | 18.96   | 220.88                                 |
|                  | October 2001        | 239.84                                   | 16.32   | 223.52                                 |
|                  | October 2002        | 239.84                                   | 19.70   | 220.14                                 |
|                  | 12/29/2004          | 239.84                                   | 26.50   | 213.34                                 |
|                  | 1/11/2007           | 239.84                                   | 17.94   | 221.90                                 |
|                  | 12/21/2010          | 239.84                                   | 12.97   | 226.87                                 |
|                  | 1/25/2012           | 239.84                                   | 11.73   | 228.11                                 |
|                  | 12/27/2012          | 239.84                                   | 11.17   | 228.67                                 |
|                  | 1/30/2014           | 239.84                                   | 15.17   | 224.67                                 |
|                  | 12/19/2014          | 239.84                                   | 13.66   | 226.18                                 |
|                  | 1/6/2016            | 239.84                                   | 16.81   | 223.03                                 |
|                  | 12/06/2016          | 239.84                                   | 12.92   | 226.92                                 |
|                  | 12/05/2017          | 239.84                                   | 11.4  | 228.44                                 |
|                  | 6/27/2018           | 239.84                                   | 12.96   | 226.88                                 |
|                  | 9/19/2018           | 239.84                                   | 16.18   | 223.66                                 |
|                  | 12/27/2018          | 239.84                                   | 13.91   | 225.93                                 |
|                  | 1/30/2019           | 239.84                                   | 13.78   | 226.06                                 |
|                  | 5/22/2019           | 239.84                                   | 13.87   | 225.97                                 |
|                  | 7/19/2019           | 239.84                                   | 14.94   | 224.90                                 |
| CBS-7A           | 4/1/1999            | 255.79                                   | 33.10   | 222.69                                 |
|                  | October 2000        | 255.79                                   | 35.13   | 220.66                                 |
|                  | October 2001        | 255.79                                   | 33.27   | 222.52                                 |
|                  | October 2002        | 255.79                                   | 38.40   | 217.39                                 |
|                  | 12/29/2004          | 255.79                                   | 34.17   | 221.62                                 |
|                  | 1/11/2007           | 255.79                                   | 34.78   | 221.01                                 |
|                  | 12/21/2010          | 255.79                                   | 29.58   | 226.21                                 |
|                  | 1/25/2012           | 255.79                                   | 28.99   | 226.80                                 |
|                  | 12/27/2012          | 255.79                                   | 27.54   | 228.25                                 |
|                  | 1/30/2014           | 255.79                                   | 32.90   | 222.89                                 |
|                  | 12/19/2014          | 255.79                                   | 29.37   | 226.42                                 |
|                  | 1/6/2016            | 255.79                                   | 32.93   | 222.86                                 |
|                  | 12/06/2016          | 255.79                                   | 28.54   | 227.25                                 |
|                  | 12/06/2017          | 255.79                                   | 27.32   | 228.47                                 |
|                  | 1/31/2019           | 255.79                                   | 28.87   | 226.92                                 |
| CBS-10A          | 4/1/1999            | 256.66                                   | 32.55   | 224.11                                 |
|                  | October 2000        | 256.66                                   | 35.16   | 221.50                                 |
|                  | October 2001        | 256.66                                   | 32.72   | 223.94                                 |
|                  | October 2002        | 256.66                                   | 35.77   | 220.89                                 |
|                  | 12/29/2004          | 256.66                                   | 33.69   | 222.97                                 |
|                  | 1/11/2007           | 256.66                                   | 35.32   | 221.34                                 |
|                  | 12/21/2010          | 256.66                                   | 29.98   | 226.68                                 |
|                  | 1/25/2012           | 256.66                                   | 29.51   | 227.15                                 |
|                  | 12/27/2012          | 256.66                                   | 27.82   | 228.84                                 |
|                  | 1/30/2014           | 256.66                                   | 31.43   | 225.23                                 |
|                  | 12/19/2014          | 256.66                                   | 29.89   | 226.77                                 |
|                  | 1/6/2016            | 256.66                                   | 33.26   | 223.40                                 |
|                  | 12/06/2016          | 256.66                                   | 29.23   | 227.43                                 |
|                  | 12/06/2017          | 256.66                                   | 27.92   | 228.74                                 |
|                  | 1/31/2019           | 256.66                                   | 29.93   | 226.73                                 |
| VMW-2            | 4/1/1999            | 242.21                                   | 19.10   | 223.11                                 |
|                  | October 2000        | 242.21                                   | 21.24   | 220.97                                 |
|                  | October 2001        | 242.21                                   | 22.22   | 219.99                                 |
|                  | October 2002        | 242.21                                   | 22.30   | 219.91                                 |
|                  | 12/29/2004          | 242.21                                   | 24.38   | 217.83                                 |
|                  | 1/11/2007           | 242.21                                   | 23.69   | 218.52                                 |
|                  | 12/21/2010          | 242.21                                   | 17.38   | 224.83                                 |
|                  | 1/25/2012           | 242.21                                   | 16.27   | 225.94                                 |
|                  | 12/27/2012          | 242.21                                   | 14.98   | 227.23                                 |
|                  | 1/30/2014           | 242.21                                   | 17.28   | 224.93                                 |
|                  | 12/19/2014          | 242.21                                   | 15.59   | 226.62                                 |
|                  | 1/6/2016            | 242.21                                   | 20.34   | 221.87                                 |
|                  | 12/06/2016          | 242.21                                   | 15.58   | 226.63                                 |
|                  | 12/06/2017          | 242.21                                   | 14.25   | 227.96                                 |
|                  | 1/30/2019           | 242.21                                   | 15.62   | 226.59                                 |

Table 1: Depth to Groundwater and Groundwater Elevations  
South Tacoma Field Site

| <b>Well Designation</b> | <b>Date of Measurement</b> | <b>Top of Casing Elevation (feet above MSL)</b> | <b>Measured Depth to Water (feet from top of casing)</b> | <b>Groundwater Elevation (feet above MSL)</b> |
|-------------------------|----------------------------|---|--|---|
| VMW-3                   | 4/1/1999                   | 238.52  | 15.85  | 222.67  |
|                         | October 2000               | 238.52  | 17.75  | 220.77  |
|                         | October 2001               | 238.52  | 18.87  | 219.65  |
|                         | October 2002               | 238.52  | 19.22  | 219.30  |
|                         | 12/29/2004                 | 238.52  | 21.04  | 217.48  |
|                         | 1/11/2007                  | 238.52  | 19.44  | 219.08  |
|                         | 12/21/2010                 | 238.52  | 13.55  | 224.97  |
|                         | 1/25/2012                  | 238.52  | 12.44  | 226.08  |
|                         | 12/27/2012                 | 238.52  | 11.81  | 226.71  |
|                         | 1/30/2014                  | 238.52  | 13.77  | 224.75  |
|                         | 12/19/2014                 | 238.52  | 11.98  | 226.54  |
|                         | 1/6/2016                   | 238.52  | 16.53  | 221.99  |
|                         | 12/06/2016                 | 238.52  | 11.91  | 226.61  |
|                         | 12/06/2017                 | 238.52  | 10.33  | 228.19  |
|                         | 1/30/2019                  | 238.52  | 12.02  | 226.50  |
| NMW-17A1                | 4/1/1999                   | 246.06  | 23.30  | 222.76  |
|                         | October 2000               | 246.06  | 25.12  | 220.94  |
|                         | October 2001               | 246.06  | 26.09  | 219.97  |
|                         | October 2002               | 246.06  | 26.68  | 219.38  |
|                         | 12/29/2004                 | 246.06  | 28.89  | 217.17  |
|                         | 1/11/2007                  | 246.06  | 26.98  | 219.08  |
|                         | 12/21/2010                 | 246.06  | 26.92  | 219.14  |
|                         | 1/25/2012                  | 246.06  | 25.83  | 220.23  |
|                         | 12/27/2012                 | 246.06  | 23.96  | 222.10  |
|                         | 1/30/2014                  | 246.06  | 21.56  | 224.50  |
|                         | 12/19/2014                 | 246.06  | 19.43  | 226.63  |
|                         | 1/6/2016                   | 246.06  | 24.03  | 222.03  |
|                         | 12/06/2016                 | 246.06  | 19.38  | 226.68  |
|                         | 12/05/2017                 | 246.06  | 18.01  | 228.05  |
|                         | 1/31/2019                  | 246.06  | 19.39  | 226.67  |
| STM-1A                  | 4/1/1999                   | NA  | NM   | NC  |
|                         | October 2000               | NA  | NM   | NC  |
|                         | October 2001               | NA  | NM   | NC  |
|                         | October 2002               | NA  | NM   | NC  |
|                         | 12/29/2004                 | NA  | NM   | NC  |
|                         | 1/11/2007                  | NA  | NM   | NC  |
|                         | 12/21/2010                 | NA  | NM   | NC  |
|                         | 1/25/2012                  | NA  | NM   | NC  |
|                         | 12/27/2012                 | NA  | NM   | NC  |
|                         | 1/30/2014                  | NA  | NM   | NC  |
|                         | 12/19/2014                 | NA  | NM   | NC  |
| STM-1A1                 | 1/6/2016                   | 254.9   | 31.60  | 223.30  |
|                         | 12/06/2016                 | 254.9   | 27.63  | 227.27  |
|                         | 12/04/2017                 | 254.9   | 26.12  | 228.78  |
|                         | 1/31/2019                  | 254.9   | 28.52  | 226.38  |
|                         | 5/22/2019                  | 254.9   | 28.61  | 226.29  |
|                         | 7/19/19                    | 254.9   | 29.7   | 225.20  |
|                         | 12/11/2019                 | 254.9   | 30   | 224.90  |
| STM-3A1                 | 7/19/2019                  | 238.57  | 13.50  | 225.07  |
|                         | 12/11/2019                 | 238.57  | 13.87  | 224.70  |

Table 1: Depth to Groundwater and Groundwater Elevations  
South Tacoma Field Site

| Well Designation               | Date of Measurement | Top of Casing Elevation (feet above MSL) | Measured Depth to Water (feet from top of casing) | Groundwater Elevation (feet above MSL) |
|--------------------------------|---------------------|--|---|--|
| <b>Amsted Monitoring Wells</b> |                     |  |   |  |
| CBS-4A                         | 4/1/1999            | 251.94                                   | 28.01   | 223.93                                 |
|                                | October 2000        | 251.94                                   | 31.16   | 220.78                                 |
|                                | October 2001        | 251.94                                   | 28.30   | 223.64                                 |
|                                | October 2002        | 251.94                                   | 31.83   | 220.11                                 |
|                                | 12/29/2004          | 251.94                                   | 29.72   | 222.22                                 |
|                                | 1/11/2007           | 251.94                                   | 28.11   | 223.83                                 |
|                                | 12/21/2010          | 251.94                                   | 24.56   | 227.38                                 |
|                                | 1/25/2012           | 251.94                                   | 23.96   | 227.98                                 |
|                                | 12/27/2012          | 251.94                                   | 22.37   | 229.57                                 |
|                                | 1/30/2014           | 251.94                                   | 26.59   | 225.35                                 |
|                                | 12/19/2014          | 251.94                                   | 25.12   | 226.82                                 |
|                                | 1/6/2016            | 251.94                                   | 28.27   | 223.67                                 |
|                                | 12/06/2016          | 251.94                                   | 24.35   | 227.59                                 |
|                                | 12/05/2017          | 251.94                                   | 22.93   | 229.01                                 |
|                                | 1/31/2019           | 251.94                                   | 25.25   | 226.69                                 |
| MW-1A                          | 4/1/1999            | 243.33                                   | 19.80   | 223.53                                 |
|                                | October 2000        | 243.33                                   | 22.77   | 220.56                                 |
|                                | October 2001        | 243.33                                   | 19.68   | 223.65                                 |
|                                | October 2002        | 243.33                                   | 23.59   | 219.74                                 |
|                                | 12/29/2004          | 243.33                                   | 21.26   | 222.07                                 |
|                                | 1/11/2007           | 243.33                                   | 16.40   | 226.93                                 |
|                                | 12/21/2010          | 243.33                                   | 14.98   | 228.35                                 |
|                                | 1/25/2012           | 243.33                                   | 12.62   | 230.71                                 |
|                                | 12/27/2012          | 243.33                                   | 11.86   | 231.47                                 |
|                                | 1/30/2014           | 243.33                                   | 18.05   | 225.28                                 |
|                                | 12/19/2014          | 243.33                                   | 16.49   | 226.84                                 |
|                                | 1/6/2016            | 243.33                                   | 18.81   | 224.52                                 |
|                                | 12/06/2016          | 243.33                                   | 15.88   | 227.45                                 |
|                                | 12/05/2017          | 243.33                                   | 13.62   | 229.71                                 |
|                                | 1/30/2019           | 243.33                                   | 16.61   | 226.72                                 |
| VMW-1                          | 4/1/1999            | 236.75                                   | 13.08   | 223.67                                 |
|                                | October 2000        | 236.75                                   | 16.05   | 220.70                                 |
|                                | October 2001        | 236.75                                   | 16.95   | 219.80                                 |
|                                | October 2002        | 236.75                                   | 16.79   | 219.96                                 |
|                                | 12/29/2004          | 236.75                                   | 17.36   | 219.39                                 |
|                                | 1/11/2007           | 236.75                                   | 12.99   | 223.76                                 |
|                                | 12/21/2010          | 236.75                                   | 9.06  | 227.69                                 |
|                                | Jan-12              | 236.75                                   | 7.47  | 229.28                                 |
|                                | 12/27/2012          | 236.75                                   | 7.14  | 229.61                                 |
|                                | 1/30/2014           | 236.75                                   | 11.59   | 225.16                                 |
|                                | 12/19/2014          | 236.75                                   | 10.11   | 226.64                                 |
|                                | 1/6/2016            | 236.75                                   | 13.18   | 223.57                                 |
|                                | 12/06/2016          | 236.75                                   | 9.44  | 227.31                                 |
|                                | 12/05/2017          | 236.75                                   | 17.01   | 219.74                                 |
|                                | 1/30/2019           | 236.75                                   | 10.27   | 226.48                                 |

**Notes:**

MSL = mean sea level

Monitoring well NMW-8A was replaced by monitoring well NMW-8A1 in January 2016.

NA = No elevation is available

NM = Not measured

NC = Elevation not calculated

Monitoring well NMW-11 was replaced by monitoring well NMW-11A in 2006.

Monitoring well STM-1A was replaced by monitoring well STM-1A1 in January 2016.

Table 2: Groundwater Analytical Results  
South Tacoma Field Wells

| Monitoring Well  | Date Sampled | Total Lead<br>(µg/L) | Dissolved Lead<br>(µg/L) | Turbidity<br>(NTU) |
|--|--------------|----------------------|--------------------------|--------------------|
| <b>South Tacoma Field Monitoring Wells</b>                 |              |                      |                          |                    |
| STM-1A   | April 2000   | <b>5.00</b>          | NA                       | NA                 |
|  | October 2000 | <b>11.0</b>          | NA                       | NA                 |
|  | October 2001 | <1.00                | NA                       | NA                 |
|  | October 2002 | NA                   | NA                       | NA                 |
|  | 12/29/2004   | NA                   | NA                       | NA                 |
|  | 1/10/2006    | NA                   | NA                       | NA                 |
|  | 1/11/2007    | NA                   | NA                       | NA                 |
|  | 12/26/2007   | NA                   | NA                       | NA                 |
|  | 12/29/2008   | NA                   | NA                       | NA                 |
|  | 1/27/2010    | NA                   | NA                       | NA                 |
|  | 12/21/2010   | NA                   | NA                       | NA                 |
|  | 1/25/2012    | NA                   | NA                       | NA                 |
|  | 12/27/2012   | NA                   | NA                       | NA                 |
|  | 1/30/2014    | NA                   | NA                       | NA                 |
|  | 12/19/2014   | NA                   | NA                       | NA                 |
| STM-1A1  | 1/6/2016     | <2.00                | NA                       | 22.99              |
|  | 12/6/2016    | <2.00                | NA                       | 0.51               |
|  | 12/4/2017    | <2.00                | NA                       | 4.64               |
|  | 1/31/2019    | <2.00                | NA                       | 1.02               |
|  | 5/22/2019    | <2.00                | <2.00                    | 1.35               |
|  | 7/19/2019    | <2.00                | <2.00                    | 0.15               |
|  | 12/11/2019   | <2.00                | <2.00                    | 0.16               |
| STM-3A   | April 2000   | <b>5.00</b>          | NA                       | NA                 |
|  | October 2000 | <b>1.00</b>          | NA                       | NA                 |
|  | October 2001 | <b>3.00</b>          | NA                       | NA                 |
|  | October 2002 | <b>1.39</b>          | NA                       | NA                 |
|  | 12/29/2004   | <b>2.26</b>          | NA                       | NA                 |
|  | 1/10/2006    | <b>2.56</b>          | NA                       | NA                 |
|  | 1/11/2007    | <b>6.02</b>          | NA                       | NA                 |
|  | 12/26/2007   | <1.00                | NA                       | NA                 |
|  | 12/29/2008   | <1.00                | NA                       | NA                 |
|  | 1/27/2010    | <b>8.90</b>          | NA                       | NA                 |
|  | 12/21/2010   | <b>19.9</b>          | NA                       | NA                 |
|  | 1/25/2012    | <b>16.3</b>          | NA                       | NA                 |
|  | 12/27/2012   | <b>130.0</b>         | NA                       | NA                 |
|  | 1/30/2014    | <b>25.0</b>          | NA                       | 27.3               |
|  | 12/19/2014   | <b>17.0</b>          | NA                       | 31.92              |
|  | 1/6/2016     | <b>5.73</b>          | NA                       | 2.44               |
|  | 12/6/2016    | <b>21.2</b>          | NA                       | 103                |
|  | 12/5/2017    | <b>24.3</b>          | NA                       | 80.82              |
|  | 06/27/2018   | <b>14.6</b>          | <2.00                    | 190.5              |
|  | 9/19/2018    | <2.00 / <2.00        | <2.00 / <2.00            | 19.95              |
|  | 12/27/2018   | <b>5.5</b>           | <2.00                    | 36.3               |
|  | 1/30/2019    | <b>9.1</b>           | <2.00                    | 20.44              |
|  | 5/22/2019    | <2.00                | <2.00                    | 4.37               |
|  | 7/19/2019    | <2.00                | <2.00                    | 4.96               |
| STM-3A abandoned September 2019 due to obstruction in well |              |                      |                          |                    |
| STM-3A1  | 7/19/2019    | <2.00                | <2.00                    | 1.68               |
|  | 12/11/2019   | <2.00 / <2.00        | <2.00 / < 2.00           | 1.27               |

Table 2: Groundwater Analytical Results  
South Tacoma Field Wells

| Monitoring Well   | Date Sampled | Total Lead<br>(µg/L)        | Dissolved Lead<br>(µg/L) | Turbidity<br>(NTU) |
|---|--------------|-----------------------------|--------------------------|--------------------|
| STM-4A / STM-100  | April 2000   | <b>16.0 / 18.0</b>          | NA                       | NA                 |
|   | October 2000 | <b>10.0 / 9.00</b>          | NA                       | NA                 |
|   | October 2001 | <b>4.00 / 3.00</b>          | NA                       | NA                 |
|   | October 2002 | <b>9.95 / 8.26</b>          | NA                       | NA                 |
|   | 12/29/2004   | <b>2.80 / 6.85</b>          | NA                       | NA                 |
|   | 1/10/2006    | <b>13.3 / 7.82</b>          | NA                       | NA                 |
|   | 1/11/2007    | <b>8.21 / 8.96</b>          | NA                       | NA                 |
|   | 12/26/2007   | <b>3.95 / 4.16</b>          | NA                       | NA                 |
|   | 12/29/2008   | <b>13.2</b>                 | NA                       | NA                 |
|   | 1/27/2010    | <b>15.0 / 19.0</b>          | NA                       | NA                 |
|   | 12/21/2010   | <b>50.4 / 45.6</b>          | NA                       | NA                 |
|   | 1/25/2012    | <b>74.5 / 70.8</b>          | NA                       | NA                 |
|   | 12/27/2012   | <b>260.0 / 290.0</b>        | NA                       | NA                 |
|   | 1/30/2014    | <b>46 / 56</b>              | NA                       | 53.4               |
|   | 12/19/2014   | <b>40 / 38</b>              | NA                       | 39.85              |
|   | 1/6/2016     | <b>5.95 / 5.08</b>          | NA                       | 2.87               |
|   | 12/6/2016    | <b>31.9 / 27.5</b>          | NA                       | 38                 |
|   | 12/5/2017    | <b>116 / 88.3</b>           | NA                       | 73.07              |
|   | 6/27/2018    | <b>53.2 / 6.30</b>          | <2.00 / <2.00            | 13.29              |
|   | 9/19/2018    | Well Not Able to be Sampled |                          |                    |
|   | 12/27/2018   | <b>6.98 / 6.24</b>          | <2.00                    | 7.19               |
|   | 1/30/2019    | <b>2.79 / 10.1</b>          | <2.00 / <2.00            | 22.74              |
|   | 5/22/2019    | <b>4.72 / 4.52</b>          | <2.00 / <2.00            | 2.03               |
|   | 7/19/2019    | <2.00 / <2.00               | <2.00 / <2.00            | 2.64               |
| STM-4A abandoned September 2019 due to obstruction in well      |              |                             |                          |                    |
| CBS-7A  | April 2000   | <1.00                       | NA                       | NA                 |
|   | October 2000 | <b>5.00</b>                 | NA                       | NA                 |
|   | October 2001 | <1.00                       | NA                       | NA                 |
|   | October 2002 | <b>1.17</b>                 | NA                       | NA                 |
|   | 12/29/2004   | <b>1.07</b>                 | NA                       | NA                 |
|   | 1/10/2006    | <1.00                       | NA                       | NA                 |
|   | 1/11/2007    | <1.00                       | NA                       | NA                 |
|   | 12/26/2007   | <b>7.26</b>                 | NA                       | NA                 |
|   | 12/29/2008   | <b>2.03/2.71</b>            | NA                       | NA                 |
|   | 1/27/2010    | <b>9.80</b>                 | NA                       | NA                 |
|   | 12/21/2010   | <b>0.92</b>                 | NA                       | NA                 |
|   | 1/25/2012    | <b>0.69</b>                 | NA                       | NA                 |
|   | 12/27/2012   | <1.00                       | NA                       | NA                 |
|   | 1/30/2014    | <b>3.8</b>                  | NA                       | 27.6               |
|   | 12/19/2014   | <2.00                       | NA                       | 14.51              |
|   | 1/6/2016     | <b>6.78</b>                 | NA                       | 0.24               |
|   | 12/6/2016    | <b>3.22</b>                 | NA                       | 12.1               |
|   | 12/6/2017    | <b>3.49 B</b>               | NA                       | 2.67               |
|   | 1/31/2019    | <2.00                       | NA                       | 2.08               |
| CBS-9A  | April 2000   | <1.00                       | NA                       | NA                 |
|   | October 2000 | <1.00                       | NA                       | NA                 |
| CBS-9A abandoned in 2001 to accommodate construction activities |              |                             |                          |                    |

Table 2: Groundwater Analytical Results  
South Tacoma Field Wells

| Monitoring Well | Date Sampled | Total Lead<br>(µg/L) | Dissolved Lead<br>(µg/L) | Turbidity<br>(NTU) |
|-----------------|--------------|----------------------|--------------------------|--------------------|
| CBS-10A         | April 2000   | <b>8.00</b>          | NA                       | NA                 |
|                 | October 2000 | <1.00                | NA                       | NA                 |
|                 | October 2001 | <1.00                | NA                       | NA                 |
|                 | October 2002 | <b>5.37</b>          | NA                       | NA                 |
|                 | 12/29/2004   | <b>2.48</b>          | NA                       | NA                 |
|                 | 1/10/2006    | <b>1.45</b>          | NA                       | NA                 |
|                 | 1/11/2007    | <b>1.17</b>          | NA                       | NA                 |
|                 | 12/26/2007   | <1.00                | NA                       | NA                 |
|                 | 12/29/2008   | <1.00                | NA                       | NA                 |
|                 | 1/27/2010    | <2.00                | NA                       | NA                 |
|                 | 12/21/2010   | <b>0.76</b>          | NA                       | NA                 |
|                 | 1/25/2012    | <b>0.61</b>          | NA                       | NA                 |
|                 | 12/27/2012   | <1.00                | NA                       | NA                 |
|                 | 1/30/2014    | <1.00                | NA                       | 1.8                |
|                 | 12/19/2014   | <2.00                | NA                       | 6.46               |
|                 | 1/6/2016     | <b>2.26</b>          | NA                       | 3.32               |
|                 | 12/6/2016    | <2.00                | NA                       | 8.2                |
|                 | 12/6/2017    | <b>2.47 B</b>        | NA                       | 0.0                |
|                 | 1/31/2019    | <2.00                | NA                       | 1.4                |
| VMW-2           | April 2000   | <b>6.00</b>          | NA                       | NA                 |
|                 | October 2000 | <b>9.00</b>          | NA                       | NA                 |
|                 | October 2001 | <b>4.00</b>          | NA                       | NA                 |
|                 | October 2002 | <b>18.20</b>         | NA                       | NA                 |
|                 | 12/29/2004   | <1.00                | NA                       | NA                 |
|                 | 1/10/2006    | <b>4.00</b>          | NA                       | NA                 |
|                 | 1/11/2007    | <1.00                | NA                       | NA                 |
|                 | 12/26/2007   | <b>9.73</b>          | NA                       | NA                 |
|                 | 12/29/2008   | <b>1.59</b>          | NA                       | NA                 |
|                 | 1/27/2010    | <2.00                | NA                       | NA                 |
|                 | 12/21/2010   | <b>3.20</b>          | NA                       | NA                 |
|                 | 1/25/2012    | <b>6.30</b>          | NA                       | NA                 |
|                 | 12/27/2012   | <1.00                | NA                       | NA                 |
|                 | 1/30/2014    | <1.00                | NA                       | 18                 |
|                 | 12/19/2014   | <2.00                | NA                       | 4.94               |
|                 | 1/6/2016     | <2.00                | NA                       | 0.41               |
|                 | 12/6/2016    | <2.00                | NA                       | 4.83               |
|                 | 12/6/2017    | <2.00                | NA                       | 0.0                |
|                 | 1/30/2019    | <2.00                | NA                       | 6.3                |

Table 2: Groundwater Analytical Results  
South Tacoma Field Wells

| Monitoring Well               | Date Sampled | Total Lead (µg/L) | Dissolved Lead (µg/L) | Turbidity (NTU) |
|-------------------------------|--------------|-------------------|-----------------------|-----------------|
| VMW-3                         | April 2000   | <b>2.00</b>       | NA                    | NA              |
|                               | October 2000 | <b>18.00</b>      | NA                    | NA              |
|                               | October 2001 | <b>2.00</b>       | NA                    | NA              |
|                               | October 2002 | <b>2.92</b>       | NA                    | NA              |
|                               | 12/29/2004   | <b>6.43</b>       | NA                    | NA              |
|                               | 1/10/2006    | <b>6.41</b>       | NA                    | NA              |
|                               | 1/11/2007    | <b>7.56</b>       | NA                    | NA              |
|                               | 12/26/2007   | <1.00             | NA                    | NA              |
|                               | 12/29/2008   | <1.00             | NA                    | NA              |
|                               | 1/27/2010    | <2.00             | NA                    | NA              |
|                               | 12/21/2010   | <b>1.40</b>       | NA                    | NA              |
|                               | 12/27/2012   | <b>14.40</b>      | NA                    | NA              |
|                               | 1/30/2014    | <1.00             | NA                    | 16.2            |
|                               | 12/19/2014   | <2.00             | NA                    | 5.2             |
|                               | 1/6/2016     | <2.00             | NA                    | 0.01            |
|                               | 12/6/2016    | <2.00             | NA                    | 0.86            |
|                               | 12/6/2017    | <2.00             | NA                    | 0.0             |
|                               | 1/30/2019    | <2.00             | NA                    | 3.9             |
| NMW-17A                       | April 2000   | <1.00             | NA                    | NA              |
|                               | October 2000 | <1.00             | NA                    | NA              |
|                               | October 2001 | <b>2.00</b>       | NA                    | NA              |
|                               | October 2002 | <1.00             | NA                    | NA              |
|                               | 12/29/2004   | <1.00             | NA                    | NA              |
|                               | 1/10/2006    | <1.00             | NA                    | NA              |
|                               | 1/11/2007    | <1.00             | NA                    | NA              |
|                               | 12/26/2007   | <1.00             | NA                    | NA              |
|                               | 12/29/2008   | <1.00             | NA                    | NA              |
|                               | 1/27/2010    | <2.00             | NA                    | NA              |
|                               | 12/21/2010   | <1.00             | NA                    | NA              |
|                               | 12/27/2012   | <1.00             | NA                    | NA              |
|                               | 1/30/2014    | <1.00             | NA                    | 9               |
|                               | 12/19/2014   | <2.00             | NA                    | 6.15            |
|                               | 1/6/2016     | <2.00             | NA                    | 0.0             |
|                               | 12/6/2016    | <2.00             | NA                    | 1.11            |
|                               | 12/5/2017    | <b>2.36 B</b>     | NA                    | 6.06            |
|                               | 1/31/2019    | <2.00             | NA                    | 4.88            |
| EPA Maximum Contaminant Level |              | 15.00             |                       |                 |

**Notes:**

The day of the month samples were collected is presented where known.

Groundwater Samples were analyzed for total and dissolved lead using the U.S. Environmental Protection Agency (EPA) Method 6020.

µg/L = micrograms per liter

< = Analyte not reported above the indicated laboratory reporting limit.

B = The same analyte is found in the associated blank.

NA = Not analyzed/Data not collected (turbidity)

Monitoring well STM-1A was damaged and replaced by monitoring well STM-1A1 in January 2016.

Where two results are presented, the second is the duplicate sample result.

Monitoring well CBS-9A was abandoned in 2001 to accommodate construction activities.

Well STM-4A was not able to be sampled in September 2018 due to a partial obstruction.

EPA Maximum Contaminant Levels (MCL) are provided in the Drinking Water Regulations under the Safe Drinking Water Act, as amended.

Concentrations above the EPA MCL are bolded and shaded yellow.

Table 3: Groundwater Analytical Results, Pioneer Builders Supply Monitoring Wells

| Monitoring Well                                 | Date Sampled <sup>(a)</sup> | Petroleum Hydrocarbons (mg/L) |                       |                    | Volatile Organic Compounds (µg/L) |           |               |               |                |                  |                   |                     |                      |                      |                      |                        |                        |                        |                  |                 |                         |                         |             |                     | Chloro-benzene | Carbon tetrachloride | 1,1,2-Trichloro-ethane | Acetone      | 2-Butanone |            |
|---|-----------------------------|-------------------------------|-----------------------|--------------------|-----------------------------------|-----------|---------------|---------------|----------------|------------------|-------------------|---------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|------------------|-----------------|-------------------------|-------------------------|-------------|---------------------|----------------|----------------------|------------------------|--------------|------------|------------|
|   |                             | Gasoline Range Organics       | Diesel Range Organics | Oil Range Organics | Benzene                           | Toluene   | Ethyl-benzene | Total Xylenes | n-Butylbenzene | sec-Butylbenzene | tert-Butylbenzene | p-Isopropyl-toluene | 1,2-Dichloro-benzene | 1,3-Dichloro-benzene | 1,4-Dichloro-benzene | 1,3,5-Trimethylbenzene | 1,2,4-Trimethylbenzene | 1,2,3-Trimethylbenzene | Isopropylbenzene | n-Propylbenzene | 1,2,4-Trichloro-benzene | 1,2,3-Trichloro-benzene | Naphthalene | 1,2-Dichloro-ethane | Chloroform     |                      |                        |              |            |            |
| <b>Pioneer Builders Supply Monitoring Wells</b> |                             |                               |                       |                    |                                   |           |               |               |                |                  |                   |                     |                      |                      |                      |                        |                        |                        |                  |                 |                         |                         |             |                     |                |                      |                        |              |            |            |
| NMW-1A  | October 2001                | 3.4/3.4                       | <0.250/0.250          | <0.500/0.500       | 3.1/3.2                           | 16/16     | 78/80         | 113/113       | NA             | NA               | NA                | <1.00/1.00          | NA                   | 1.1/1.1              | 22/25                | 95/95                  | NA                     | 16/18                  | 18/20            | <5.0/5.0        | <5.0/5.0                | 14/15                   | NA          | NA                  | NA             | NA                   | NA                     | NA           |            |            |
|   | October 2002                | 5.660/5.180                   | 0.859/0.910           | <0.500/0.500       | 7.61/7.26                         | 38.3/24.5 | 148/116       | 272.3/207.9   | NA             | NA               | NA                | <1.00/1.00          | NA                   | 4.15/17.4            | 70.7/50.8            | 180/118                | NA                     | 37.9/32.6              | 45.2/34.7        | <1.00/1.00      | 3.14/1.00               | 86.3/66.6               | NA          | NA                  | NA             | NA                   | NA                     | NA           |            |            |
|   | 12/29/2004                  | 0.629/0.626                   | <0.250/0.250          | <1.00/1.00         | 6.50/6.50                         | 2.18/2.28 | <1.00/1.00    | 2.57/2.68     | NA             | <1.00/1.00       | 1.291/1.40        | 1.03/1.00           | <1.00/1.00           | <1.00/1.00           | NA                   | 9.39/9.66              | 1.65/1.73              | <1.00/1.00             | <1.00/1.00       | NA              | NA                      | NA                      | NA          | NA                  | NA             | NA                   | NA                     | NA           |            |            |
|   | 1/1/2006                    | 3.663/3.66                    | <0.301/0.286          | <0.602/0.500       | 6.18/6.23                         | 31.5/31.7 | 177/177       | 147/148       | NA             | <1.00/1.00       | <1.00/1.00        | <1.00/1.00          | 8.67/10.7            | 74.8/75.2            | NA                   | 35.1/35.3              | 26.0/26.4              | 1.12/1.12              | <1.00/1.00       | 25.7/25.2       | NA                      | NA                      | NA          | NA                  | NA             | NA                   | NA                     | NA           |            |            |
|   | 1/1/2007                    | 3.623/3.44                    | <0.250/0.255          | <0.515/0.510       | 23.5/24.3                         | 128/130   | 166/167       | 1.95/2.74     | NA             | 2.50/2.75        | 0.580/0.640       | 3.57/3.84           | 0.400/0.400          | 1.66/1.79            | 11.1/11.4            | NA                     | 24.0/25.0              | 14.1/15.0              | 3.03/3.19        | 54.4/57.4       | <2.00/2.22              | NA                      | NA          | NA                  | NA             | NA                   | NA                     |              |            |            |
|   | 12/26/2007                  | 1.511/1.50                    | <0.238/0.250          | <0.476/0.500       | 5.61/5.69                         | 9.08/9.20 | 64.5/65.54    | 1.69/1.63     | NA             | 3.88/3.81        | 0.660/0.680       | 0.760/0.770         | <1.00/1.00           | 0.880/0.880          | 2.40/2.36            | 3.47/3.06              | 33.8/33.0              | NA                     | 15.4/15.3        | 9.86/9.90       | 1.08/1.00               | <1.00/1.00              | 7.64/7.21   | <0.200/0.200        | NA             | <0.200               | <0.200/0.200           | <0.200/0.200 | <10.0/10.0 | <2.00/2.00 |
|   | 12/29/2008                  | 0.475/0.469                   | <0.243/0.245          | <0.485/0.490       | 1.32/1.32                         | 2.41/2.43 | 9.96/9.94     | 6.98/6.94     | NA             | <1.00/1.00       | 2.06/2.07         | <1.00/1.00          | <1.00/1.00           | <1.00/1.00           | 1.62/1.67            | <1.00/1.00             | 7.32/7.35              | NA                     | 5.03/5.33        | 2.80/2.77       | <5.00/5.00              | <5.00/5.00              | <1.00/1.00  | <1.00/1.00          | <1.00/1.00     | <1.00/1.00           | <20.0/20.0             | <10.0/10.0   |            |            |
|   | 1/2/2010                    | 1.81/1.8                      | 0.66/0.68             | <0.380/0.380       | <0.240/0.240                      | 4.7/5.1   | 19/20         | 28/30         | 44/46          | NA               | <1.0/1.0          | 5/5.5               | 0.67/0.73            | <1.0/1.0             | 0.62/0.62            | 4.75/2                 | 10.0/11.0              | 6.1/6.5                | 120/110          | 3.5             | 32/33                   | 6.77/0                  | 1.08/1.00   | <1.0/1.0            | <5.0/5.0       | <1.0/1.0             | <1.0/1.0               | <10.0/10.0   | NA         |            |
|   | 12/21/2010                  | 3.143/3.19                    | 0.16/0.16             | <0.380/0.380       | 4.5/4.1                           | 24.2/21.2 | 157           | 4.7/4.1       | NA             | 5.3/4.7          | 1.3/1.3           | 12.7/11.6           | 37.5/34.2            | 14.2/13.1            | 137/123              | <1.0/1.0               | 32.2/28.1              | 30.3/26.4              | 3.8/3.6          | 39.5/41.9       | <1.0/1.0                | 1.61/1.4                | <1.0/1.0    | <1.0/1.0            | <1.0/1.0       | <1.0/1.0             | <5.0/5.0               | <1.0/1.0     |            |            |
|   | 1/25/2012                   | 1.2/1.25                      | <0.077/0.076          | <0.380/0.380       | <1.0/1.0                          | 3.0/2.8   | 36.5/35.6     | 19.2/19.8     | 2.0/2.0        | NA               | <1.0/1.0          | 3.5/3.6             | <1.0/1.0             | 1.2/1.2              | <1.0/1.0             | 8.3/8.2                | 9.1/9.4                | 3.7/3.7                | 8.6/8.5          | <1.0/1.0        | <5.0/5.0                | <1.0/1.0                | <1.0/1.0    | <1.0/1.0            | <1.0/1.0       | <5.0/5.0             | <1.0/1.0               |              |            |            |
|   | 12/27/2012                  | 0.260/0.220                   | <0.100/0.100          | <0.250/0.250       | <1.0/1.0                          | 3/3/3.0   | 10/8.9        | 13/11         | NA             | <1.0/1.0         | <1.0/1.0          | <1.0/1.0            | 1.3/1.4              | 3.7/3.8              | <1.0/1.0             | 6.6/6.8                | <1.0/1.0               | 1.5/1.4                | 1.1/1.0          | <1.0/1.0        | <5.0/5.0                | <1.0/1.0                | <1.0/1.0    | <1.0/1.0            | <1.0/1.0       | <1.0/1.0             | <5.0/5.0               | <1.0/1.0     |            |            |
|   | 1/30/2014                   | 1.1/1.2                       | 0.60/0.60             | 0.29/0.25          | 2.0/2.2                           | 8.5/9.1   | 65/72         | 50/56         | NA             | <1.0/1.0         | 1.2/1.5           | <1.0/1.0            | 1.0/1.0              | 1.0/1.0              | 1.0/1.0              | 1.0/1.0                | 11.0/13.0              | 5.5/5.6                | 18/20            | <1.0/1.0        | 2.4/2/4                 | <1.0/1.0                | <5.0/5.0    | <1.0/1.0            | <1.0/1.0       | <1.0/1.0             | <5.0/5.0               | <1.0/1.0     |            |            |
|   | 12/19/2014                  | <0.100/0.100                  | 0.120/0.110           | <0.250/0.250       | <1.0/1.0                          | <1.0/1.0  | <1.0/1.0      | <1.0/1.0      | NA             | <1.0/1.0         | <1.0/1.0          | <1.0/1.0            | <1.0/1.0             | <1.0/1.0             | <1.0/1.0             | <1.0/1.0               | <1.0/1.0               | <1.0/1.0               | <1.0/1.0         | <1.0/1.0        | <1.0/1.0                | <1.0/1.0                | <1.0/1.0    | <1.0/1.0            | <1.0/1.0       | <1.0/1.0             | <1.0/1.0               |              |            |            |
|   | 1/6/2016                    | 0.332/0.337                   | <0.250/0.250          | <1.0/1.0           | <1.0/1.0                          | <1.0/1.0  | <1.0/1.0      | <1.0/1.0      | NA             | <1.0/1.0         | <1.0/1.0          | <1.0/1.0            | 6.43/6.70            | <1.0/1.0             | <1.0/1.0             | <1.0/1.0               | 3.29/3.44              | 1.58/1.66              | <5.0/5.0         | <5.0/5.0        | <1.0/1.0                | <1.0/1.0                | <1.0/1.0    | <1.0/1.0            | <1.0/1.0       | <1.0/1.0             | <1.0/1.0               | <1.0/1.0     |            |            |
|   | 1/26/2016                   | <0.100/0.100                  | 0.250/0.250           | <0.500/0.500       | <1.0/1.0                          | <1.0/1.0  | <1.0/1.0      | <1.0/1.0      | NA             | <1.0/1.0         | <1.0/1.0          | <1.0/1.0            | <1.0/1.0             | <1.0/1.0             | <1.0/1.0             | <1.0/1.0               | <1.0/1.0               | <1.0/1.0               | <1.0/1.0         | <1.0/1.0        | <1.0/1.0                | <1.0/1.0                | <1.0/1.0    | <1.0/1.0            | <1.0/1.0       | <1.0/1.0             | <1.0/1.0               |              |            |            |
|   | 1/24/2017                   | 0.900/0.610                   | 0.345/0.321           | <0.209/0.181       | <1.0/1.0                          | 2.0/1.89  | 25.6/22.0     | 17.64/15.09   | NA             | <1.0/1.0         | 1.09/1.0          | <1.00/1.00          | 1.02/1.0             | <1.00/1.00           | 0.458 J/0.344 J      | 3.27/2.59              | <1.00/1.00             | 26.4/21.6              | 2.98/2.50        | 4.56/3.82       | 5.00/4.18               | <1.0/1.0                | <1.00/1.00  | 9.32/5.54           | <1.00/1.00     | <5.00/5.00           | <1.00/1.00             | <1.00/1.00   | <1.0/1.0   | <1.0/1.0   |
|   | 1/31/2019                   | 0.294/0.279                   | <0.250/0.250          | <0.250/0.250       | <1.0/1.0                          | <1.0/1.0  | <1.0/1.0      | <1.0/1.0      | NA             | 1.84/2.05        | &lt               |                     |                      |                      |                      |                        |                        |                        |                  |                 |                         |                         |             |                     |                |                      |                        |              |            |            |

Table 3: Groundwater Analytical Results, Pioneer Builders Supply Monitoring Wells

| Monitoring Well                      | Date Sampled <sup>(a)</sup> | Petroleum Hydrocarbons (mg/L)     |                       |                    | Volatile Organic Compounds (µg/L) |         |               |               |                |                  |                   |                     |                      |                      |                      |                         |                         |                         |                   |                  |                         |                         |             |                     |            |               |                      |                        |         |            |       |
|--------------------------------------|-----------------------------|-----------------------------------|-----------------------|--------------------|-----------------------------------|---------|---------------|---------------|----------------|------------------|-------------------|---------------------|----------------------|----------------------|----------------------|-------------------------|-------------------------|-------------------------|-------------------|------------------|-------------------------|-------------------------|-------------|---------------------|------------|---------------|----------------------|------------------------|---------|------------|-------|
|                                      |                             | Gasoline Range Organics           | Diesel Range Organics | Oil Range Organics | Benzene                           | Toluene | Ethyl-benzene | Total Xylenes | n-Butylbenzene | sec-Butylbenzene | tert-Butylbenzene | p-Isopropyl-toluene | 1,2-Dichloro-benzene | 1,3-Dichloro-benzene | 1,4-Dichloro-benzene | 1,3,5-Trimethyl-benzene | 1,2,4-Trimethyl-benzene | 1,2,3-Trimethyl-benzene | Isopropyl-benzene | n-Propyl-benzene | 1,2,4-Trichloro-benzene | 1,2,3-Trichloro-benzene | Naphthalene | 1,2-Dichloro-ethane | Chloroform | Chlorobenzene | Carbon tetrachloride | 1,1,2-Trichloro-ethane | Acetone | 2-Butanone |       |
| EPA Maximum Contaminant Level        |                             | NE                                | NE                    | NE                 | 5                                 | 1,000   | 700           | 10,000        | NE             | NE               | NE                | NE                  | 600                  | NE                   | 75                   | NE                      | NE                      | NE                      | NE                | NE               | NE                      | 70                      | NE          | NE                  | 5          | 80            | 100                  | 5                      | 5       | NE         | NE    |
| Site Cleanup Level                   |                             | 0.8 (with benzene)/1 (no benzene) | 0.5                   | 0.5                | 5                                 | 640     | 700           | 1,600         | NE             | NE               | NE                | NE                  | 720                  | NE                   | 8.10                 | 80                      | NE                      | NE                      | NE                | NE               | NE                      | 80                      | NE          | 160                 | 0.48       | 80            | 160                  | 0.63                   | 5       | 7,200      | 4,800 |
| MTCA Method B CUL (where applicable) |                             |                                   |                       |                    | 0.795                             |         |               |               |                |                  |                   |                     |                      |                      | 8.10                 |                         |                         |                         |                   |                  |                         | 1.51                    |             |                     |            |               |                      |                        | 0.77    |            |       |

Notes:

The day of the month samples were collected is presented where known.

Groundwater samples were analyzed for petroleum hydrocarbons using the Northwest total petroleum hydrocarbon (TPH) method for gasoline (NWTPH-Gx) and diesel and heavy oil (NWTPH-Dx).

mg/L = milligrams per liter

µg/L = micrograms per liter

Groundwater samples were analyzed for volatile organic compounds using the U.S. Environmental Protection Agency (EPA) Method 8260.

**Bold** indicates analyte was reported above the laboratory reporting limit.

Second result is the duplicate sample result.

Blue shading indicates analyte is above the MTCA Method B CUL.

Yellow shading indicates analyte was reported above the site cleanup level or EPA Maximum Contaminant Level (MCL).

< = Analyte not reported above the indicated laboratory reporting limit.

NA = Not analyzed, or original laboratory reports were not available for review.

J = Concentration is an estimated value above the laboratory detection limit and less than the laboratory reporting limit.

Monitoring well NMW-8A was damaged and replaced by monitoring well NMW-8A1 in January 2016.

Monitoring well NMW-11 was replaced by monitoring well NMW-11A in 2006.

EPA MCLs are provided in the Drinking Water Regulations under the Safe Drinking Water Act, as amended.

NE = Not Established. An EPA MCL or Site Cleanup Level has not been established for this chemical.

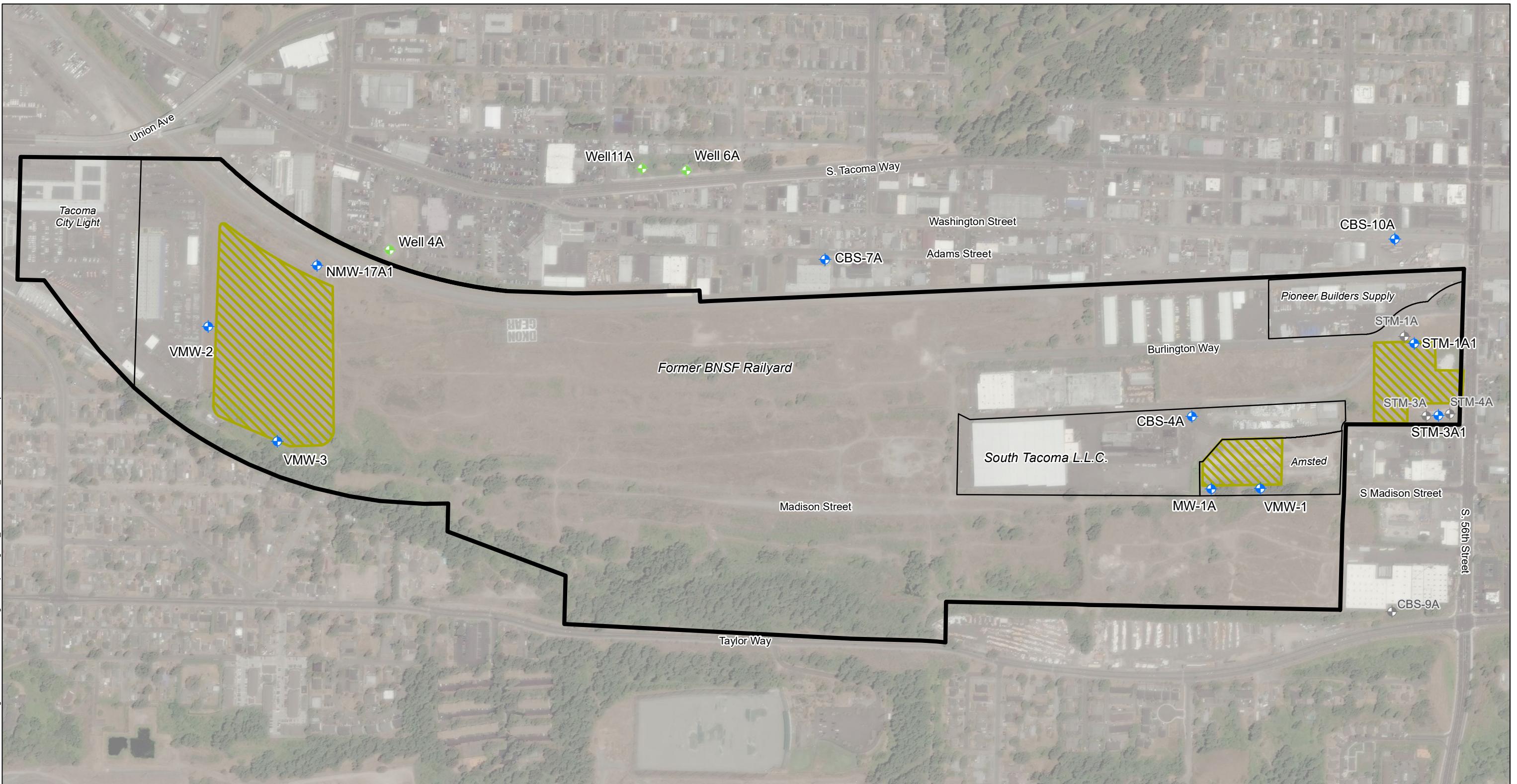
MTCA= Model Toxic Control Act

Cleanup levels from Table 9-4 of the Record of Decision. Additional updates are from Table 2-4 of EPA's 2013 Five-year review (September 2013).



## Figures

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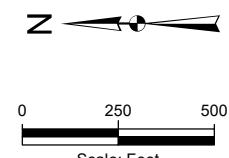
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

### Legend

- ◆ Monitoring Wells
- Consolidation Area
- ◆ City Wells
- ◆ Area Boundaries
- ◆ Abandoned Monitoring Wells
- Approximate STF OU Boundary

### Notes:

1. All locations are approximate.
2. STF = South Tacoma Field, OU = Operable Unit.



0 250 500  
Scale: Feet

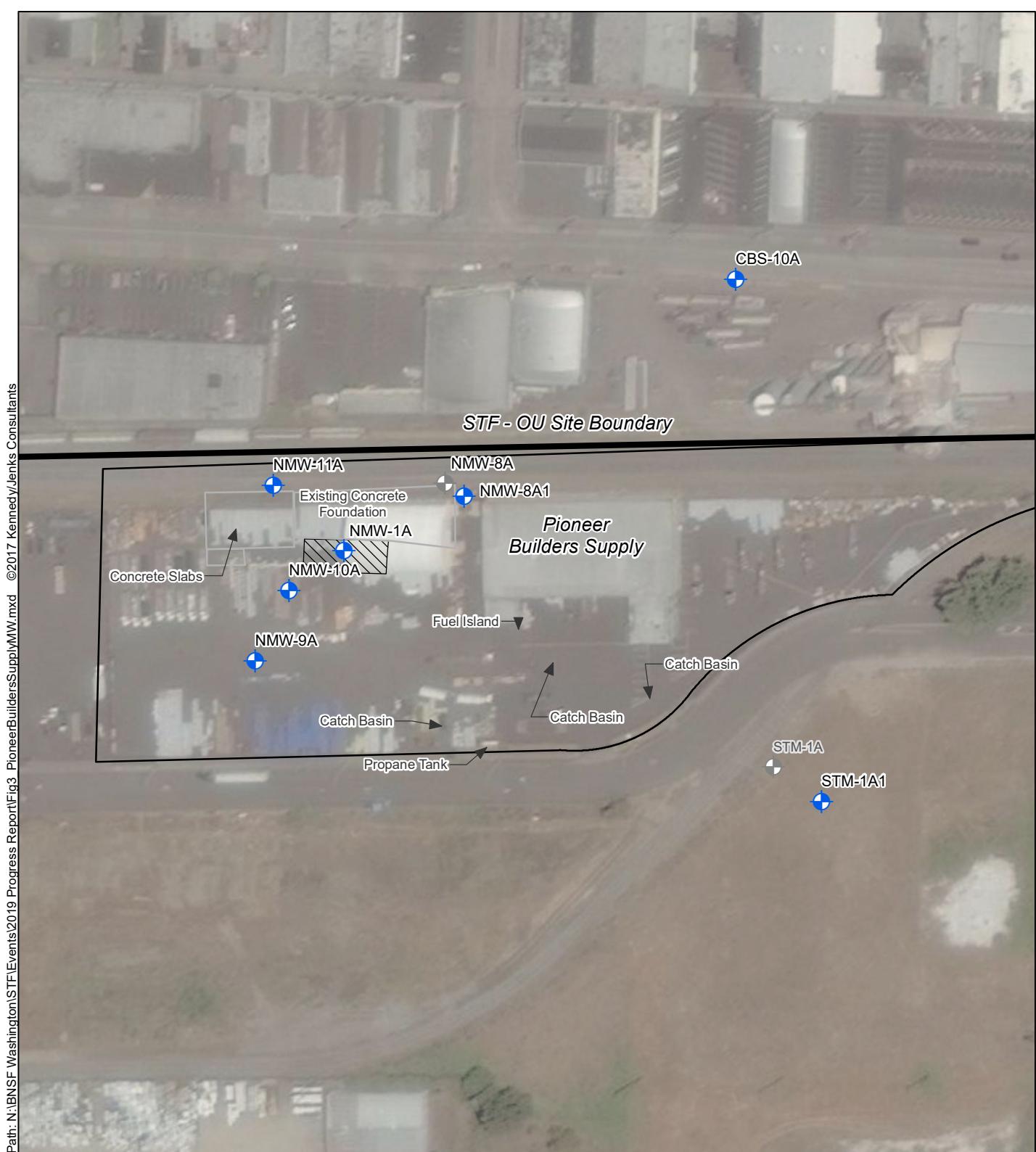
**KJ** Kennedy Jenkins

South Tacoma Field  
Tacoma, Washington

### Monitoring Well Locations

March 2020

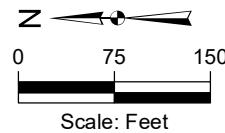
**Figure 1**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

### Legend

- Monitoring Wells
- Abandoned Monitoring Wells



**Pioneer Builder Supply Monitoring Well Locations**

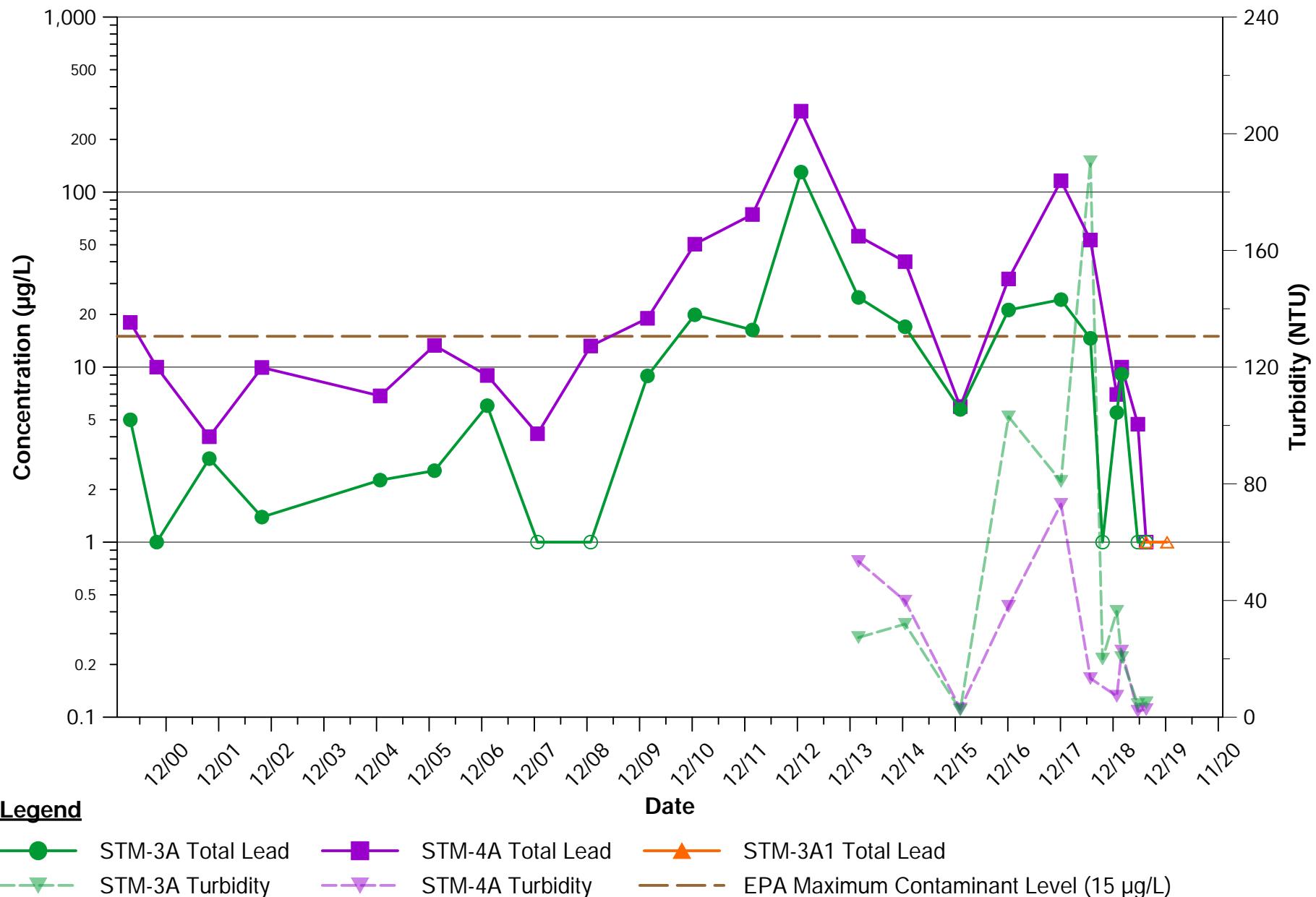
March 2020

**Figure 2**

**KJ** Kennedy Jenks

South Tacoma Field  
Tacoma, Washington

**FIGURE 3**  
**TOTAL LEAD IN GROUNDWATER TREND CHART**  
**BNSF South Tacoma Field, Tacoma, Washington**



Notes:  $\mu\text{g/L}$  = micrograms per liter. NTU = Nephelometric Turbidity Unit.

Filled symbols indicate detected concentrations. Open symbols indicate not detected (ND) results, shown as 1  $\mu\text{g/L}$ , which is half the maximum historical reporting limit.

March 2020  
1996126.00